

PARTICIPATORY ASSESSMENT OF SEISMIC RISK AND RESILIENCE IN COSTA RICA

Costa Rica is located along the Pacific Ring of Fire. The seismicity of the country is determined by the interaction between the tectonic plates of Cocos and Caribe in the Subduction Zone (Protti, Schwartz, & Zandt, 1996), the micro-plate of Panama and the distorted rings of the North and South of Panama. The subduction can generate seismic events of great magnitude, which represents a high seismic hazard due to tsunamis along the Pacific coast of Costa Rica (CAPRA, 2009). Moreover, there is a broader system of local faults that cross the central region, denominated the distorted ring that crosses Costa Rica (Villar-Vega, 2018). The convergence zone of the tectonic plates of Cocos, Caribe and Nazca is located to the southeast of the country in the region of the Dulce Gulf. This converge zone is the reason for the presence of high “seismic swarms” in this region of the country. The earthquakes in Cartago (1910), Limon (1991), Chinchona (2009) and Samara (2012) confirm the high level of seismicity in Costa Rica (CAPRA, 2009). The country is divided into seven provinces: San José, Alajuela, Cartago, Heredia, Guanacaste, Puntarenas y Limón. The province of San Jose canton is divided into 20 cantons and the Province of Guanacaste is divided in 11. In the framework of the Assessing and Mitigating Earthquake Risk in the Caribbean and Central America (CCARA) project, and jointly with the municipality of San Jose and the National Commission of Emergencies (CNE) of Costa Rica, we undertook a participatory assessment of seismic risk and resilience-based using the Resilience Performance Scorecard (RPS) methodology developed by Khazai, Anhorn, & Burton (2018). The RPS is a self-evaluation methodology to empower the community to assess resilience parameters based on primary source information. This methodology consisted on 39 questions distributed in six dimensions: Legal and Institutional Arrangements; Social Capacity; Critical Services and Public Infrastructure Resilience; Emergency Preparedness, Response and Recovery; Planning, Regulation and Mainstreaming Risk Mitigation and Awareness and Advocacy. The participants have divided two groups: officials from the government institutions of San Jose and representatives of NGOs’ present in Costa Rica and community leaders from the cantons of San José, Escazú, Desamparados, Aserrí, Alajuelita and Vásquez de Coronado from the province of San Jose and Cañas en Guanacaste. The workshop with the officials took place the 15th June 2017, we count with 34 attendants, 14 (41%) were women and 20 (59%) were men. The workshop with the community leaders was undertaken on the 16th of June 2017. The community leaders selected by the CNE already belonged to a group of people who participate in activities of capacity building in disaster prevention and emergency attention. In this workshop, we had 40 attendants. The participation of women was the double of men, 27 (67%) were women and 13 (33%) were men. The attendance numbers show a high representation of women, which was one of the objectives of the RPS in San Jose. Both exercises were undertaken in the local language: Spanish. Regarding the dimension of Legal and Institutional Arrangements, it was clear that the community leaders were aware of the existence of a land use plan, but the application is not visible for them. The government officials know very well the National Law of Emergency and Risk Prevention (Legislative Decree N.º 8488 - Record N.º 14.452), thus it is clear for them who are the responsibility of the Disaster Risk Reduction (DRR) activities, but not for the citizen. There are big differences between officials and the community leaders in the perception of topics related to Social Capacities such as decision making, cultural heritage, availability of social programs, accessibility and evacuation routes, coverage of health services for vulnerable population and the immigration. In regards to critical services and public infrastructure resilience, it was concluded from the discussion that it is a necessary renewal of lifelines with the participation of the institutions in charge of the DRR and community leaders. With respect to Emergency Preparedness, Response and Recovery, it was found that very few participants keep some kind of available provisions in case of an earthquake and that the municipality does not have a local center for the implementation and coordination of emergency response. Officials and community leaders agree that the level of awareness of population regarding the impact of an earthquake on their impact and their life is almost none, then it is necessary to promote the insurance among the population. The officials and

community leaders have a similar opinion related to the activities involved in the planning, regulation and mainstreaming of risk mitigation (Contreras et al., 2018). In conclusion, the result of the application of this methodology reports medium to high levels of seismic risk and resilience perceived among the sampling population in the six dimensions that the methodology was tested. The main recommendation is to increase the participation of the community in the actions oriented to enhance resilience in Costa Rica.

Keywords: Seismic risk, resilience, vulnerability, Disaster Risk Reduction (DRR), San Jose, Costa Rica.

Track: A) People – Root causes of vulnerability.

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